

=> fil reg
FILE 'REGISTRY' ENTERED AT 07:12:30 ON 27 FEB 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2007 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 26 FEB 2007 HIGHEST RN 923293-79-2
DICTIONARY FILE UPDATES: 26 FEB 2007 HIGHEST RN 923293-79-2

New CAS Information Use Policies, enter HELP USAGETERMS for details.

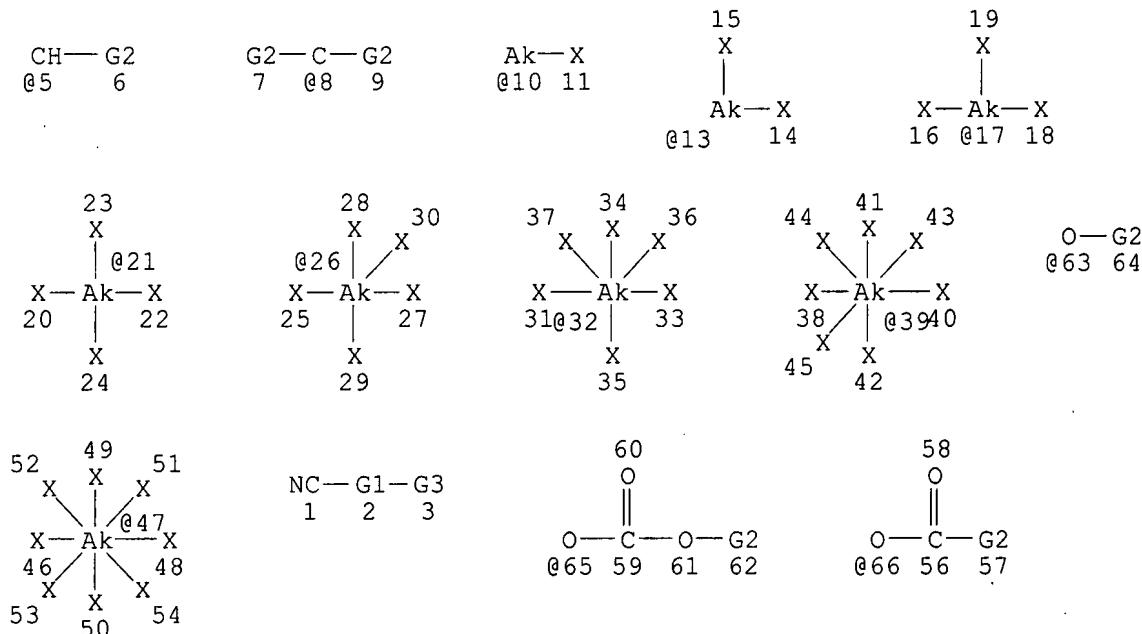
TSCA INFORMATION NOW CURRENT THROUGH June 30, 2006

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/ONLINE/UG/regprops.html>

=> d sta que 116
L11 STR



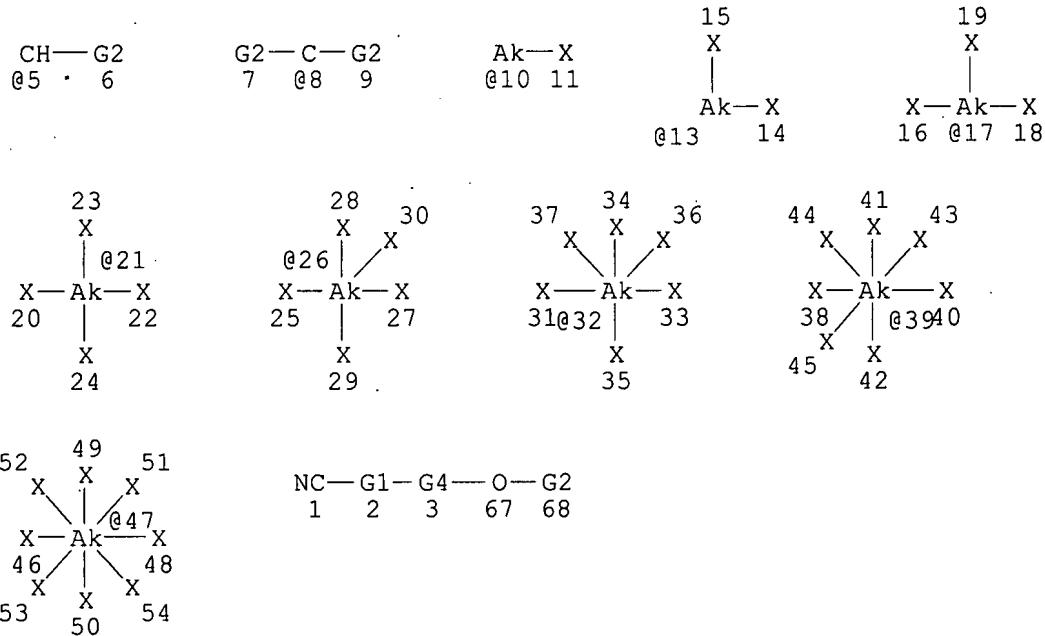
```
VAR G1=CH2/5/8
VAR G2=AK/10/13/17/21/26/32/39/47
VAR G3=63/66/65
NODE ATTRIBUTES:
CONNECT IS M1  RC AT  47
DEFAULT MLEVEL IS ATOM
DEFAULT FCLEVEL IS LIMITED
```

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 63

STEREO ATTRIBUTES: NONE

L12 STR



VAR G1=CH2/5/8

VAR G2=AK/10/13/17/21/26/32/39/47

REP G4=(1-2) CH2

NODE ATTRIBUTES:

CONNECT IS M1 RC AT 47

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 54

STEREO ATTRIBUTES: NONE

L14 SCR 2043 OR 1838 OR 1993 OR 2021 OR 2016 OR 2026 OR 1918 O
R 2039 OR 2050 OR 2049 OR 2053 OR 2052 OR 2051 OR 2054 OR 2127
L16 724 SEA FILE=REGISTRY CSS FUL (L11 OR L12) NOT L14

100.0% PROCESSED 10659 ITERATIONS (26 INCOMPLETE) 724 ANSWERS
SEARCH TIME: 00.06.41

=> fil hcaplus
FILE 'HCAPLUS' ENTERED AT 07:12:46 ON 27 FEB 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is

held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, copying, or storing of this information, without the prior written consent of CAS, is strictly prohibited.

FILE COVERS 1907 - 27 Feb 2007 VOL 146 ISS 10
FILE LAST UPDATED: 26 Feb 2007 (20070226/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d 164 bib abs hitind hitstr retable tot

L64 ANSWER 1 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 2005:497321 HCAPLUS
DN 143:29529
TI Nonaqueous electrolytes having an extended temperature range for **battery** applications
IN Sun, Luying
PA USA
SO U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 1

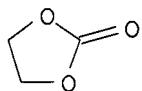
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2005123835	A1	20050609	US 2003-731268	20031209 <--
PRAI US 2003-731268		20031209 <--		
OS MARPAT 143:29529				

AB The present invention discloses non-aqueous electrolytes having an extended temperature range for **battery** applications. The electrolyte comprises an electrolyte salt, e.g., LiPF₆, a first non-aqueous solvent, and a second non-aqueous solvent. The electrolyte of the present invention has higher ionic conductivity, lower f.p., and lower vapor pressure at high temperature than com. electrolytes. These non-aqueous electrolytes can be used, for example, in lithium-ion **batteries**. Methods of making lithium-ion **batteries** are also described.

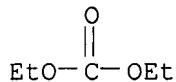
IC ICM H01M0010-40
ICS H01M0004-52; H01M0004-50; H01M0004-58
INCL 429326000; 429330000; 429339000; 429231300; 429231100; 429223000; 429221000; 429224000; 429231800
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 76
ST **battery** nonaq electrolyte extended temp range
IT Electrochromic devices
Sensors
(electrolyte; nonaq. electrolytes having extended temperature range for **battery** applications)
IT Secondary **batteries**
(lithium; nonaq. electrolytes having extended temperature range for **battery** applications)
IT **Battery electrolytes**

Electrolytic capacitors
 Fuel cell electrolytes
 Ionic conductivity
 (nonaq. electrolytes having extended temperature range for **battery**
 applications)
 IT Carbonaceous materials (technological products)
 Coke
 Esters, uses
 Ethers, uses
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolytes having extended temperature range for **battery**
 applications)
 IT Sulfonic acids, uses
 RL: DEV (Device component use); USES (Uses)
 (perfluoro, lithium salt; nonaq. electrolytes having extended temperature
 range for **battery** applications)
 IT Perfluoro compounds
 RL: DEV (Device component use); USES (Uses)
 (sulfonic acids, lithium salt; nonaq. electrolytes having extended
 temperature range for **battery** applications)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 108-32-7, Propylene carbonate 110-67-8,
 3-Methoxypropionitrile 463-79-6D, Carbonic acid, ester, cyclic
 463-79-6D, Carbonic acid, ester, linear 616-38-6,
 Dimethyl carbonate 623-53-0, Ethyl methyl carbonate
 1001-55-4, 2-Acetoxyacetonitrile 1656-48-0 1738-36-9,
 Methoxyacetonitrile 2141-62-0, 3-Ethoxypropionitrile
 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate
 12031-65-1, Lithium nickel oxide (LiNiO₂) 12057-17-9,
 Lithium manganese oxide (LiMn₂O₄) 12190-79-3, Cobalt lithium
 oxide (CoLiO₂) 14283-07-9, Lithium tetrafluoroborate
 15365-14-7, Iron lithium phosphate felipo4 18804-04-1,
 uses 21324-40-3, Lithium hexafluorophosphate 29935-35-1
 , Lithium hexafluoroarsenate 56756-91-3 62957-60-2,
 Ethoxyacetonitrile 90076-65-6 260362-83-2
 311346-25-5, Cobalt lithium nickel oxide (Co0.1-0.9LiNi0.1-0.902)
 852995-04-1
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolytes having extended temperature range for **battery**
 applications)
 IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 108-32-7, Propylene carbonate 110-67-8,
 3-Methoxypropionitrile 463-79-6D, Carbonic acid, ester, cyclic
 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl
 carbonate 1001-55-4, 2-Acetoxyacetonitrile 1738-36-9,
 Methoxyacetonitrile 2141-62-0, 3-Ethoxypropionitrile
 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate
 12031-65-1, Lithium nickel oxide (LiNiO₂) 12057-17-9,
 Lithium manganese oxide (LiMn₂O₄) 12190-79-3, Cobalt lithium
 oxide (CoLiO₂) 14283-07-9, Lithium tetrafluoroborate
 15365-14-7, Iron lithium phosphate felipo4 18804-04-1,
 uses 21324-40-3, Lithium hexafluorophosphate 29935-35-1
 , Lithium hexafluoroarsenate 56756-91-3 62957-60-2,
 Ethoxyacetonitrile 90076-65-6 260362-83-2
 311346-25-5, Cobalt lithium nickel oxide (Co0.1-0.9LiNi0.1-0.902)
 852995-04-1
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolytes having extended temperature range for **battery**
 applications)
 RN 96-49-1 HCAPLUS

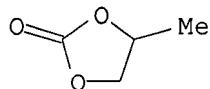
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 105-58-8 HCPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)

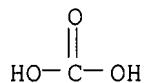


RN 110-67-8 HCPLUS
 CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

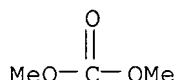
MeO-CH₂-CH₂-CN

Group D

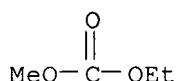
RN 463-79-6 HCPLUS
 CN Carbonic acid (7CI, 8CI, 9CI) (CA INDEX NAME)



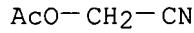
RN 616-38-6 HCPLUS
 CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 623-53-0 HCPLUS
 CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)

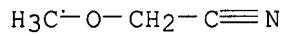


RN 1001-55-4 HCAPLUS
 CN Acetonitrile, (acetyloxy)- (9CI) (CA INDEX NAME)



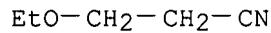
Group B

RN 1738-36-9 HCAPLUS
 CN Acetonitrile, methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



Group A

RN 2141-62-0 HCAPLUS
 CN Propanenitrile, 3-ethoxy- (9CI) (CA INDEX NAME)

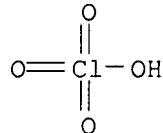


Group D

RN 7782-42-5 HCAPLUS
 CN Graphite (CA INDEX NAME)

C

RN 7791-03-9 HCAPLUS
 CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



● Li

RN 12031-65-1 HCAPLUS
 CN Lithium nickel oxide (LiNiO₂) (6CI, 8CI, 9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Ni	1	7440-02-0
Li	1	7439-93-2

RN 12057-17-9 HCAPLUS
 CN Lithium manganese oxide (LiMn₂O₄) (6CI, 7CI, 9CI) (CA INDEX NAME)

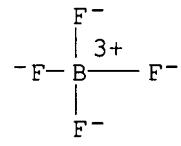
Component	Ratio	Component
		Registry Number
O	4	17778-80-2

Mn		2		7439-96-5
Li		1		7439-93-2

RN 12190-79-3 HCAPLUS
 CN Cobalt lithium oxide (CoLiO₂) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

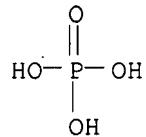
RN 14283-07-9 HCAPLUS
 CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



from claims 1, 2, 19

● Li⁺

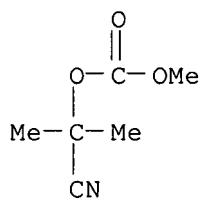
RN 15365-14-7 HCAPLUS
 CN Phosphoric acid, iron(2+) lithium salt (1:1:1) (9CI) (CA INDEX NAME)



● Fe(II)

● Li

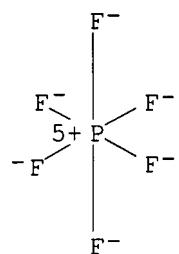
RN 18804-04-1 HCAPLUS
 CN Carbonic acid, 1-cyano-1-methylethyl methyl ester (9CI) (CA INDEX NAME)



Group C

1.800.

RN 21324-40-3 HCPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

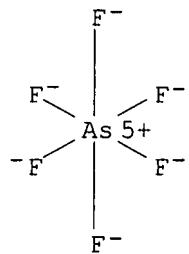


from claims 1, 2, 19

1.com

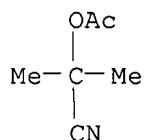
● Li⁺

RN 29935-35-1 HCAPLUS
CN Arsenate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li⁺

RN 56756-91-3 HCPLUS
CN Propanenitrile, 2-(acetoxy)-2-methyl- (9CI) (CA INDEX NAME)



Group B

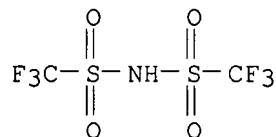
372.1033

RN 62957-60-2 HCPLUS
 CN Acetonitrile, ethoxy- (6CI, 9CI) (CA INDEX NAME)

Group A

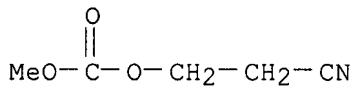
EtO-CH₂-CN

RN 90076-65-6 HCPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



● Li

RN 260362-83-2 HCPLUS
 CN Carbonic acid, 2-cyanoethyl methyl ester (9CI) (CA INDEX NAME)



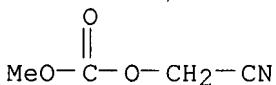
"Group C" (extra carbon in chain)
 → from claim 4

72.1033 • www.bna

RN 311346-25-5 HCPLUS
 CN Cobalt lithium nickel oxide (Co0.1-0.9LiNi0.1-0.9O₂) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	0.1 - 0.9	7440-48-4
Ni	0.1 - 0.9	7440-02-0
Li	1	7439-93-2

RN 852995-04-1 HCPLUS
 CN Carbonic acid, cyanomethyl methyl ester (9CI) (CA INDEX NAME)



Group C

0.372.1033 •

L64 ANSWER 2 OF 12 HCPLUS COPYRIGHT 2007 ACS on STN
 AN 2004:286861 HCPLUS
 DN 140:290041
 TI Electrolyte composition having improved aluminum anticorrosive properties
 IN Exnar, Ivan; Di Censo, Davide

PA Xoliox S. A., Switz.
 SO Eur. Pat. Appl., 22 pp.
 CODEN: EPXXDW

DT Patent

LA English

FAN: CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI EP 1406336	A1	20040107	EP 2002-405848	20021001 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
PRAI EP 2002-405848		20021001	<--	

AB The invention relates to an electrolyte composition for use in an electrochem. *battery* having an aluminum current collector, the composition comprising an imide salt and a nitrile-based solvent.

IC ICM H01M0010-40

ICS H01M0006-18; H01M0004-66

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72

ST **battery** electrolyte compn improved aluminum anticorrosive property

IT Amperometry

Battery electrolytes

Corrosion prevention

Plasticizers

(electrolyte composition having improved aluminum anticorrosive properties)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Thf, uses 110-71-4 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 1738-36-9, Methoxyacetonitrile 9003-05-8, Polyacrylamide 9003-20-7, Polyvinylacetate 9003-21-8, Polymethylacrylate 9003-39-8, Polyvinylpyrrolidone 12031-95-7, Lithium titanium oxide li4ti5o12 12190-79-3, Cobalt lithium oxide colio2 24937-79-9, Polyvinylidene fluoride 25322-68-3, Peo 26809-02-9, Polyacetonitrile 57619-91-7, Polytetraethylene glycol diacrylate 73506-93-1, Diethoxyethane 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 132843-44-8, Lithium bis(perfluoroethylsulfonyl)imide

RL: DEV (Device component use); USES (Uses)

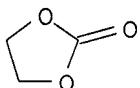
(electrolyte composition having improved aluminum anticorrosive properties)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate 646-06-0, 1,3-Dioxolane 1738-36-9, Methoxyacetonitrile 12031-95-7, Lithium titanium oxide li4ti5o12 12190-79-3, Cobalt lithium oxide colio2 90076-65-6, Lithium bis(trifluoromethylsulfonyl)imide 132843-44-8, Lithium bis(perfluoroethylsulfonyl)imide

RL: DEV (Device component use); USES (Uses)

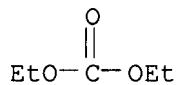
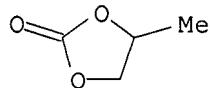
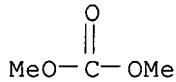
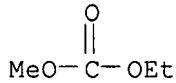
(electrolyte composition having improved aluminum anticorrosive properties)

RN 96-49-1 HCPLUS
 CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 105-58-8 HCPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)

RN 108-32-7 HCAPLUS
CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)RN 616-38-6 HCAPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)RN 623-53-0 HCAPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)RN 646-06-0 HCAPLUS
CN 1,3-Dioxolane (6CI, 8CI, 9CI) (CA INDEX NAME)RN 1738-36-9 HCAPLUS
CN Acetonitrile, methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)H₃C—O—CH₂—C≡N

Group A

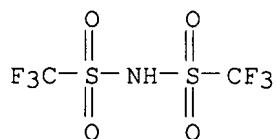
RN 12031-95-7 HCAPLUS
CN Lithium titanium oxide (Li₄Ti₅O₁₂) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	12	17778-80-2
Ti	5	7440-32-6
Li	4	7439-93-2

RN 12190-79-3 HCAPLUS
 CN Cobalt lithium oxide (CoLiO₂) (9CI) (CA INDEX NAME)

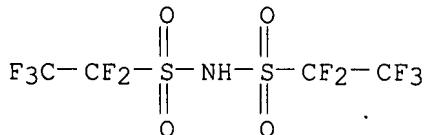
Component	Ratio	Component Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

RN 90076-65-6 HCAPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



● Li

RN 132843-44-8 HCAPLUS
 CN Ethanesulfonamide, 1,1,2,2,2-pentafluoro-N-[(pentafluoroethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



● Li

L64 ANSWER 3 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2000:624975 HCAPLUS
 DN 133:225554
 TI Nonaqueous electrolyte solutions containing cyanoethyl compounds and nonaqueous (lithium) secondary **batteries**
 IN Toriida, Masahiro; Omi, Katsuhiko; Tan, Hiroaki
 PA Mitsui Chemical Industry Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000243444	A	20000908	JP 1999-41104	19990219 <--
PRAI JP 1999-41104		19990219 <--		

OS MARPAT 133:225554

AB The solns. are nonaq. solvents containing RO(R1O)nCH2CH2CN (R = H, C1-10 hydrocarbon, cyanoethyl; R1 = C1-4 alkylene; n = integer or 0-30) and electrolytes. The solns. may also contain linear carbonate esters and/or cyclic carbonate esters given in Markush structures. Secondary batteries, especially lithium ion batteries, comprising the electrolyte solns. are also claimed. Batteries with excellent charge-discharge characteristics and high performance, under loaded conditions and low-temperature, are obtained.

IC ICM H01M0010-40

ICS H01M0004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium secondary battery nonaq electrolyte; electrolyte soln cyanoethyl additive secondary battery; cyclic carbonate nonaq electrolyte secondary battery; linear carbonate nonaq electrolyte secondary battery; carbonate nonaq electrolyte secondary battery

IT Secondary batteries
(lithium; secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

IT Battery electrolytes
(secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

IT Lithium alloy, base
RL: DEV (Device component use); USES (Uses)
(anode; secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

IT 12190-79-3, HLC 21
RL: DEV (Device component use); USES (Uses)
(HLC 21, cathode; secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

IT 7439-93-2, Lithium, uses 7440-44-0, MCMB 6-28, uses
RL: DEV (Device component use); USES (Uses)
(anode; secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-67-8 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate 1656-48-0, Bis(2-cyanoethyl) ether 2141-62-0 3386-87-6 4437-85-8, Butylene carbonate 35633-50-2
RL: DEV (Device component use); USES (Uses)
(secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

IT 12190-79-3, HLC 21
RL: DEV (Device component use); USES (Uses)
(HLC 21, cathode; secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

RN 12190-79-3 HCPLUS

CN Cobalt lithium oxide (CoLiO₂) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 7439-93-2, Lithium, uses 7440-44-0, MCMB 6-28, uses
RL: DEV (Device component use); USES (Uses)
(anode; secondary (lithium) batteries comprising of nonaq.

RN 7439-93-2 HCAPLUS
 CN Lithium (CA INDEX NAME)

solvents containing cyanoethyl compds.)

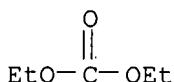
Li

RN 7440-44-0 HCAPLUS
 CN Carbon (CA INDEX NAME)

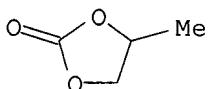
C

IT 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 110-67-8 616-38-6, Dimethyl carbonate 623-53-0, Methyl ethyl carbonate 2141-62-0
 4437-85-8, Butylene carbonate
 RL: DEV (Device component use); USES (Uses)
 (secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)

RN 105-58-8 HCAPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



RN 108-32-7 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)

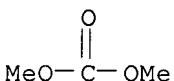


RN 110-67-8 HCAPLUS
 CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

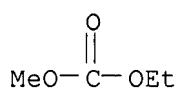
MeO-CH₂-CH₂-CN

Group D

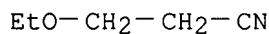
RN 616-38-6 HCAPLUS
 CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



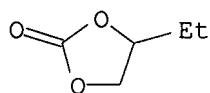
RN 623-53-0 HCAPLUS
 CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 2141-62-0 HCAPLUS
 CN Propanenitrile, 3-ethoxy- (9CI) (CA INDEX NAME)



RN 4437-85-8 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)



L64 ANSWER 4 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2000:624973 HCAPLUS
 DN 133:225552
 TI Nonaqueous electrolyte solutions containing cyanoethyl compounds and
 nonaqueous (lithium) secondary **batteries**
 IN Toriida, Masahiro; Omi, Takehiko; Tan, Hiroaki
 PA Mitsui Chemical Industry Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000243442	A	20000908	JP 1999-41102	19990219 <--
PRAI	JP 1999-41102		19990219 <--		
OS	MARPAT 133:225552				
AB	The solns. are nonaq. solvents containing ROnCO2CH2CH2CN (R = H, C1-10 hydrocarbon, CH2CH2CN; n = 0, 1) and electrolytes. The solns. may also contain linear carbonate esters and/or cyclic carbonate esters given in Markush structures. Secondary batteries , especially lithium ion batteries , comprising the electrolyte solns. are also claimed. Batteries with excellent charge-discharge characteristics and high performance, under loaded conditions and low-temperature, are obtained.				
IC	ICM H01M0010-40 ICS H01M0004-02; H01M0004-58				
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)				
ST	lithium secondary battery nonaq electrolyte; electrolyte soln cyanoethyl additive secondary battery ; cyclic carbonate nonaq electrolyte secondary battery ; linear carbonate nonaq electrolyte secondary battery ; carboxylate nonaq electrolyte secondary battery				
IT	Secondary batteries (lithium; secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)				
IT	Battery electrolytes (secondary (lithium) batteries comprising of nonaq. solvents containing cyanoethyl compds.)				

IT Lithium alloy, base
 RL: DEV (Device component use); USES (Uses)
 (anode; secondary (lithium) **batteries** comprising of nonaq.
 solvents containing cyanoethyl compds.)

IT 12190-79-3, HLC 21
 RL: DEV (Device component use); USES (Uses)
 (HLC 21, cathode; secondary (lithium) **batteries** comprising of
 nonaq. solvents containing cyanoethyl compds.)

IT 7439-93-2, Lithium, uses 7440-44-0, MCMB 6-28, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; secondary (lithium) **batteries** comprising of nonaq.
 solvents containing cyanoethyl compds.)

IT 105-58-8, Diethyl carbonate 108-32-7, Propylene
 carbonate 616-38-6, Dimethyl carbonate 623-53-0,
 Methyl ethyl carbonate 4437-85-8, Butylene carbonate
 20597-73-3, 2-Cyanoethyl propionate 260362-83-2
 RL: DEV (Device component use); USES (Uses)
 (secondary (lithium) **batteries** comprising of nonaq. solvents
 containing cyanoethyl compds.)

IT 12190-79-3, HLC 21
 RL: DEV (Device component use); USES (Uses)
 (HLC 21, cathode; secondary (lithium) **batteries** comprising of
 nonaq. solvents containing cyanoethyl compds.)

RN 12190-79-3 HCPLUS
 CN Cobalt lithium oxide (CoLiO₂) (9CI) (CA INDEX NAME)

Component	Ratio	Component
		Registry Number
O	2	17778-80-2
Co	1	7440-48-4
Li	1	7439-93-2

IT 7439-93-2, Lithium, uses 7440-44-0, MCMB 6-28, uses
 RL: DEV (Device component use); USES (Uses)
 (anode; secondary (lithium) **batteries** comprising of nonaq.
 solvents containing cyanoethyl compds.)

RN 7439-93-2 HCPLUS
 CN Lithium (CA INDEX NAME)

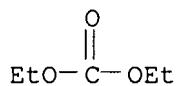
Li

RN 7440-44-0 HCPLUS
 CN Carbon (CA INDEX NAME)

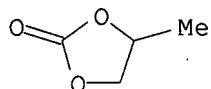
C

IT 105-58-8, Diethyl carbonate 108-32-7, Propylene
 carbonate 616-38-6, Dimethyl carbonate 623-53-0,
 Methyl ethyl carbonate 4437-85-8, Butylene carbonate
 260362-83-2
 RL: DEV (Device component use); USES (Uses)
 (secondary (lithium) **batteries** comprising of nonaq. solvents
 containing cyanoethyl compds.)

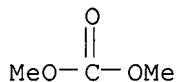
RN 105-58-8 HCPLUS
 CN Carbonic acid, diethyl ester (CA INDEX NAME)



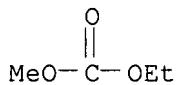
RN 108-32-7 HCPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



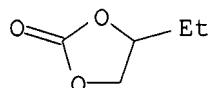
RN 616-38-6 HCPLUS
 CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



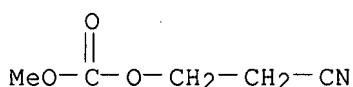
RN 623-53-0 HCPLUS
 CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 4437-85-8 HCPLUS
 CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)



RN 260362-83-2 HCPLUS
 CN Carbonic acid, 2-cyanoethyl methyl ester (9CI) (CA INDEX NAME)



"group C" - claim 4
 (1 extra carbon in chain)

L64 ANSWER 5 OF 12 HCPLUS COPYRIGHT 2007 ACS on STN
 AN 2000:399134 HCPLUS
 DN 133:20143
 TI Nonaqueous electrolyte solutions and secondary nonaqueous electrolyte
batteries
 IN Hayashi, Takeshi; Tan, Hiroaki
 PA Mitsui Petrochemical Industries, Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF

DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000164249	A	20000616	JP 1998-336632	19981127 <--
PRAI	JP 1998-336632				
OS	MARPAT 133:20143				

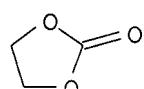
AB The electrolyte solns. contain an electrolyte and a nonaq. solvent containing a F-containing cyanoethyl ether $X(OR)_nCH_2CH_2CN$, where X = F substituted C1-10 hydrocarbon group, R = C2-4 alkylene group, and n = 0-30. The salt is selected from LiPF₆, LiBF₄, and Li salts of S containing organic acids. The **batteries** are secondary Li **batteries**.

IC ICM H01M0010-40
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
ST secondary lithium **battery** electrolyte solvent; lithium
battery electrolyte solvent fluorinated cyanoethyl ether
IT **Battery electrolytes**
(nonaq. solvent mixts. containing fluorinated cyanoethyl ethers for
electrolytes in secondary lithium **batteries**)

IT 96-49-1, Ethylene carbonate 353-18-4 616-38-6,
Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate
85169-02-4 272128-06-0 272128-07-1 272128-08-2 272128-09-3
272128-10-6

RL: DEV (Device component use); USES (Uses)
(nonaq. solvent mixts. containing fluorinated cyanoethyl ethers for
electrolytes in secondary lithium **batteries**)
IT 96-49-1, Ethylene carbonate 353-18-4 616-38-6,
Dimethyl carbonate 21324-40-3, Lithium hexafluorophosphate
272128-06-0
RL: DEV (Device component use); USES (Uses)
(nonaq. solvent mixts. containing fluorinated cyanoethyl ethers for
electrolytes in secondary lithium **batteries**)

RN 96-49-1 HCPLUS
CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)

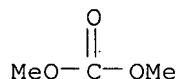


RN 353-18-4 HCPLUS
CN Propanenitrile, 3-(2-fluoroethoxy)- (9CI) (CA INDEX NAME)

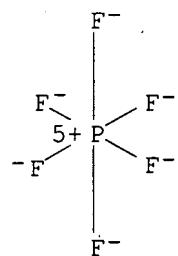
FCH₂-CH₂-O-CH₂-CH₂-CN

Group D

RN 616-38-6 HCPLUS
CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 21324-40-3 HCPLUS
 CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li⁺

RN 272128-06-0 HCPLUS
 CN Propanenitrile, 3-(2,2,2-trifluoroethoxy)- (9CI) (CA INDEX NAME)

F₃C—CH₂—O—CH₂—CH₂—CN

Group D

1.80

L64 ANSWER 6 OF 12 HCPLUS COPYRIGHT 2007 ACS on STN

AN 2000:254779 HCPLUS

DN 132:267606

TI Organic electrolyte solutions for **batteries** and capacitors

IN Nishikawa, Satoshi; Bessho, Shinji

PA Sunstar Engineering, Inc., Japan; Uni Sunstar Bv

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000113906	A	20000421	JP 1998-282341	19981005 <--
PRAI	JP 1998-282341		19981005	<--	

OS MARPAT 132:267606

AB The electrolyte solns. use a solvent containing ≥ 1 of RCOO(CH₂)_aCN, where R = H or C₁-3 alkyl or alkoxy group, a = integer 1-3. The electrolyte is a Li salt or a tetraalkyl quaternary ammonium or phosphonium salt.

IC ICM H01M0010-40

ICS C07C0255-14; H01G0009-038; H01G0009-035; H01M0006-16

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST **battery** electrolyte solvent nitrile ester; capacitor electrolyte solvent nitrile ester

IT Capacitors

(double layer; electrolyte solns. containing carboxylic acid nitrile esters for **batteries** and elec. capacitors)

IT **Battery electrolytes**

(electrolyte solns. containing carboxylic acid nitrile esters for **batteries** and elec. capacitors)

IT 5325-93-9, 2-Cyanoethyl acetate 20597-73-3, 2-Cyanoethyl propionate

21324-40-3, Lithium hexafluorophosphate 154119-71-8

260362-83-2

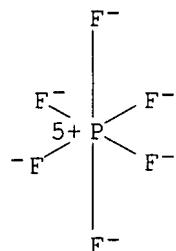
RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing carboxylic acid nitrile esters for
batteries and elec. capacitors)

IT 21324-40-3, Lithium hexafluorophosphate 260362-83-2

RL: TEM (Technical or engineered material use); USES (Uses)
 (electrolyte solns. containing carboxylic acid nitrile esters for
batteries and elec. capacitors)

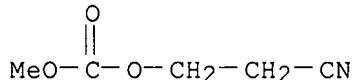
RN 21324-40-3 HCPLUS

CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

● Li⁺

RN 260362-83-2 HCPLUS

CN Carbonic acid, 2-cyanoethyl methyl ester (9CI) (CA INDEX NAME)



"Group C"
 (extra carbon)

0.372.103

L64 ANSWER 7 OF 12 HCPLUS COPYRIGHT 2007 ACS on STN

AN 2000:166259 HCPLUS

DN 132:210209

TI Secondary nonaqueous-electrolyte **batteries** with electrolytes containing cyanoethoxy compounds

IN Kobayashi, Aya; Izuchi, Shuichi

PA Yuasa Battery Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT- NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000077096	A	20000314	JP 1998-244674	19980831 <--
PRAI JP 1998-244674		19980831	<--	

OS MARPAT 132:210209

AB Claimed **batteries** are equipped with electrolytes containing cyanoethoxy compds. R(OC₂H₄CN)_n (n = 1-4; R = C_mH_{2m+2-n}, C_mH_{2m+2-n}(OC₂H₄)_p, C_mH_{2m+2-n}CO, or C_mH_{2m+2-n}OCO; m = 1-3; p = 1-4) as nonaq. solvents for Li salts. Optionally, the **batteries** are

equipped with gelled polymer electrolytes. The **batteries** have long cycle life at low temperature

IC ICM H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST cyanoethoxy compd nonaq electrolyte solvent **battery**; lithium **battery** electrolyte solvent cyanoethoxy compd

IT Secondary **batteries**
(lithium; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

IT **Battery electrolytes**
(nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(trifunctional acrylates, lithium complexes, gelled electrolytes; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

IT 14283-07-9, Lithium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolytes; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

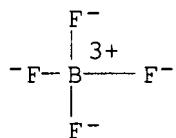
IT 25322-68-3D, Polyethylene glycol, trifunctional acrylates, lithium complexes
RL: DEV (Device component use); USES (Uses)
(gelled electrolytes; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

IT 96-48-0, γ -Butyrolactone 96-49-1, Ethylene carbonate
108-32-7, Propylene carbonate 110-67-8 1656-48-0,
Bis-2-cyanoethyl ether 2141-62-0 3386-87-6 5325-93-9
20597-73-3 32846-35-8, Bis 2-cyanoethyl carbonate 35633-51-3
260362-83-2
RL: DEV (Device component use); USES (Uses)
(solvents; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

IT 14283-07-9, Lithium tetrafluoroborate
RL: DEV (Device component use); USES (Uses)
(electrolytes; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

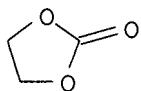


● Li^+

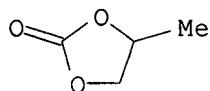
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 110-67-8 2141-62-0 260362-83-2
RL: DEV (Device component use); USES (Uses)
(solvents; nonaq. **batteries** with electrolytes containing cyanoethoxy compds. for long cycle life at low temperature)

RN 96-49-1 HCAPLUS

CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 108-32-7 HCPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



RN 110-67-8 HCPLUS
 CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

MeO-CH₂-CH₂-CN

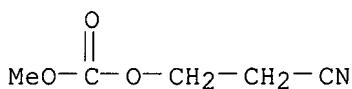
RN 2141-62-0 HCPLUS
 CN Propanenitrile, 3-ethoxy- (9CI)

Group D

3 • www.bna

EtO-CH₂-CH₂-CN

RN 260362-83-2 HCPLUS
 CN Carbonic acid, 2-cyanoethyl methyl ester (9CI) (CA INDEX NAME)



"Group C"
(extra carbon)

.com

L64 ANSWER 8 OF 12 HCPLUS COPYRIGHT 2007 ACS on STN
 AN 2000:144319 HCPLUS
 DN 132:183113
 TI Secondary nonaqueous electrolyte **batteries**
 IN Tabuchi, Toru; Aoki, Takashi; Nakamitsu, Kazuhiro; Mizutani, Minoru
 PA Japan Storage Battery Co., Ltd., Japan; GS Melcotec K. K.
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000067913	A	20000303	JP 1998-305833	19981027 <--
PRAI JP 1998-159629	A	19980608 <--		
AB	The batteries use a nonaq. Li salt electrolyte solution containing a cyano group containing ether or glycol and a carbonate ester.			
IC	ICM H01M0010-40			
CC	52-2 (Electrochemical, Radiational, and Thermal Energy Technology)			

ST secondary lithium **battery** electrolyte soln compn; lithium **battery** electrolyte cyano ether carbonate ester; cyano glycol carbonate ester lithium **battery** electrolyte

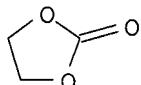
IT **Battery electrolytes**
(electrolyte solvent mixts. containing cyano ethers or cyano glycols and carbonate esters for secondary lithium **batteries**)

IT 96-49-1, Ethylene carbonate 110-67-8 623-53-0,
Ethyl methyl carbonate 3386-87-6 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent mixts. containing cyano ethers or cyano glycols and carbonate esters for secondary lithium **batteries**)

IT 96-49-1, Ethylene carbonate 110-67-8 623-53-0,
Ethyl methyl carbonate 21324-40-3, Lithium hexafluorophosphate
RL: DEV (Device component use); USES (Uses)
(electrolyte solvent mixts. containing cyano ethers or cyano glycols and carbonate esters for secondary lithium **batteries**)

RN 96-49-1 HCPLUS

CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)

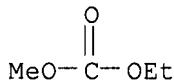


RN 110-67-8 HCPLUS
CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

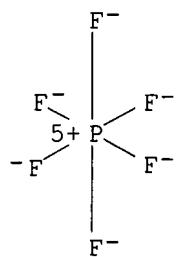
MeO—CH₂—CH₂—CN

Group D

RN 623-53-0 HCPLUS
CN Carbonic acid, ethyl methyl ester (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 21324-40-3 HCPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li⁺

L64 ANSWER 9 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1999:737130 HCAPLUS
 DN 131:325078
 TI Primary or secondary electrochemical generator
 IN Gratzel, Michael; Sugnaux, Francois R.; Pappas, Nicholas
 PA Ecole Polytechnique Federale De Lausanne (Epfl) Sri, Switz.
 SO PCT Int. Appl., 29 pp.
 CODEN: PIXXD2

DT Patent
 LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9959218	A1	19991118	WO 1999-EP3261	19990508 <--
	W: CN, JP, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1086506	A1	20010328	EP 1999-932452	19990508 <--
	R: CH, DE, FR, GB, LI, NL, IE				

PRAI EP 1998-810431 A 19980512 <--
 WO 1999-EP3261 W 19990508 <--

AB A high power d. and high capacity primary or secondary electrochem. generator has at least one electrode composed of an elec. active solid material, the electrode having a mesoporous texture forming a bi-continuous junction of large sp. surface area with the electrolyte. The specific morphol. of the electroactive material permits high rates of ion insertion in the solid while allowing for rapid ion transport in electrolyte present in the porous space of the electrode. Specific methods for preparation of the electrode are disclosed, in particular the control of the electrode morphol. by use of surfactant assemblies such as surfactant micelles exerting a templating effect during the chemical synthesis of the electroactive material.

IC ICM H01M0010-40
 ICS H01M0004-48; H01M0004-58

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST battery electrode transition metal oxide chalcogenide

IT Primary batteries
 Secondary batteries

(lithium; primary or secondary electrochem. generator)

IT Battery electrodes

(primary or secondary electrochem. generator)

IT 7440-44-0, Carbon, uses 12597-68-1, Stainless steel, uses

IT RL: DEV (Device component use); USES (Uses)
 (current collector; primary or secondary electrochem. generator)

IT 7782-42-5, Graphite, uses
 RL: DEV (Device component use); USES (Uses)
 (paper, current collector; primary or secondary electrochem. generator)

IT 96-48-0 96-49-1, Ethylene carbonate 105-58-8, Diethyl
 carbonate 108-32-7, Propylene carbonate 616-38-6,
 Dimethyl carbonate 646-06-0, Dioxolane 1309-37-1, Iron oxide
 (Fe2O3), uses 1312-43-2, Indium oxide 1313-13-9, Manganese dioxide,
 uses 1313-27-5, Molybdenum trioxide, uses 1313-96-8, Niobium pentoxide
 1314-35-8, Tungsten trioxide, uses 1314-62-1, Vanadium pentoxide, uses
 1317-33-5, Molybdenum sulfide mos2, uses 1317-61-9, Iron oxide (Fe3O4),
 uses 1738-36-9, Methoxyacetonitrile 2923-17-3, Lithium
 trifluoroacetate 11113-84-1, Ruthenium oxide 11126-12-8, Iron sulfide
 11129-18-3, Cerium oxide 12039-13-3, Titanium disulfide 12055-23-1,
 Hafnium dioxide 12067-45-7, Titanium diselenide 12138-09-9, Tungsten
 sulfide ws2 12645-46-4, Iridium oxide 13463-67-7, Titania, uses
 14024-11-4, Lithium tetrachloroaluminate 14283-07-9,
 Lithium tetrafluoroborate 18424-17-4, Lithium
 hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate
 26856-69-9, Methoxypropionitrile 28106-65-2, Tetrafluoropropanol
 29935-35-1, Lithium hexafluoroarsenate 33454-82-9,
 Lithium triflate 37245-92-4, Ruthenium sulfide 39300-70-4,
 Lithium nickel oxide 39457-42-6, Lithium manganese oxide
 52627-24-4, Cobalt lithium oxide 59763-75-6, Tantalum oxide
 66216-18-0 90076-65-6 131344-56-4, Cobalt lithium
 nickel oxide 131651-65-5, 1-Butanesulfonic acid,
 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt 132404-42-3
 248588-09-2, Indium lithium manganese sodium oxide
 RL: DEV (Device component use); USES (Uses)
 (primary or secondary electrochem. generator)

IT 7440-44-0, Carbon, uses
 RL: DEV (Device component use); USES (Uses)
 (current collector; primary or secondary electrochem. generator)

RN 7440-44-0 HCAPIPLUS
 CN Carbon (CA INDEX NAME)

C

IT 7782-42-5, Graphite, uses
 RL: DEV (Device component use); USES (Uses)
 (paper, current collector; primary or secondary electrochem. generator)

RN 7782-42-5 HCAPIPLUS
 CN Graphite (CA INDEX NAME)

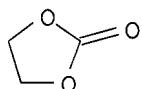
C

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate
 108-32-7, Propylene carbonate 616-38-6, Dimethyl
 carbonate 646-06-0, Dioxolane 1738-36-9,
 Methoxyacetonitrile 2923-17-3, Lithium trifluoroacetate
 14024-11-4, Lithium tetrachloroaluminate 14283-07-9,
 Lithium tetrafluoroborate 18424-17-4, Lithium
 hexafluoroantimonate 21324-40-3, Lithium hexafluorophosphate
 29935-35-1, Lithium hexafluoroarsenate 33454-82-9,
 Lithium triflate 39300-70-4, Lithium nickel oxide

39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide 90076-65-6 131344-56-4, Cobalt lithium nickel oxide 131651-65-5, 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt 132404-42-3
248588-09-2, Indium lithium manganese sodium oxide
 RL: DEV (Device component use); USES (Uses)
 (primary or secondary electrochem. generator)

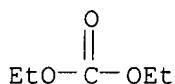
RN 96-49-1 HCPLUS

CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



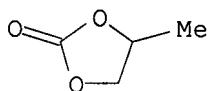
RN 105-58-8 HCPLUS

CN Carbonic acid, diethyl ester (CA INDEX NAME)



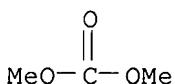
RN 108-32-7 HCPLUS

CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



RN 616-38-6 HCPLUS

CN Carbonic acid, dimethyl ester (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 646-06-0 HCPLUS

CN 1,3-Dioxolane (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 1738-36-9 HCPLUS

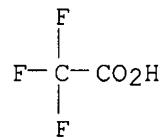
CN Acetonitrile, methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

H₃C—O—CH₂—C≡N

RN 2923-17-3 HCPLUS

Group A

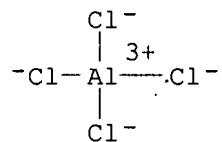
CN Acetic acid, trifluoro-, lithium salt (8CI, 9CI) (CA INDEX NAME)



● Li

RN 14024-11-4 HCAPLUS

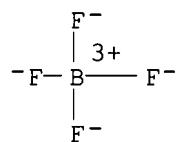
CN Aluminate(1-), tetrachloro-, lithium, (T-4)- (9CI) (CA INDEX NAME)



● Li⁺

RN 14283-07-9 HCAPLUS

CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

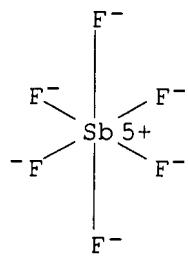


Claim 2

● Li⁺

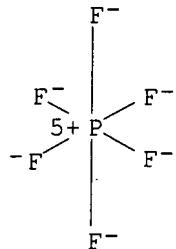
RN 18424-17-4 HCAPLUS

CN Antimonate(1-), hexafluoro-, lithium, (OC-6-11)- (9CI) (CA INDEX NAME)



● Li^+

RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

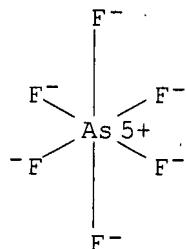


Claim 2

1.8003

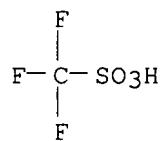
● Li^+

RN 29935-35-1 HCAPLUS
 CN Arsenate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 33454-82-9 HCAPLUS
 CN Methanesulfonic acid, trifluoro-, lithium salt (8CI, 9CI) (CA INDEX NAME)



● Li

RN 39300-70-4 HCAPLUS
 CN Lithium nickel oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component	
		Registry Number	
O	x	17778-80-2	
Ni	x	7440-02-0	
Li	x	7439-93-2	

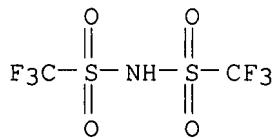
RN 39457-42-6 HCAPLUS
 CN Lithium manganese oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component	
		Registry Number	
O	x	17778-80-2	
Mn	x	7439-96-5	
Li	x	7439-93-2	

RN 52627-24-4 HCAPLUS
 CN Cobalt lithium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component	
		Registry Number	
O	x	17778-80-2	
Co	x	7440-48-4	
Li	x	7439-93-2	

RN 90076-65-6 HCAPLUS
 CN Methanesulfonamide, 1,1,1-trifluoro-N-[(trifluoromethyl)sulfonyl]-, lithium salt (9CI) (CA INDEX NAME)



● Li

RN 131344-56-4 HCAPLUS
 CN Cobalt lithium nickel oxide (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
Co	x	7440-48-4
Ni	x	7440-02-0
Li	x	7439-93-2

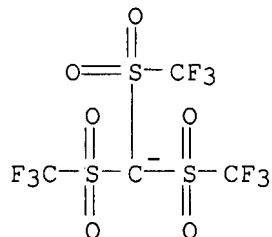
RN 131651-65-5 HCPLUS

CN 1-Butanesulfonic acid, 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt (9CI)
(CA INDEX NAME)

● Li

RN 132404-42-3 HCPLUS

CN Methane, tris[(trifluoromethyl)sulfonyl]-, ion(1-), lithium (9CI) (CA INDEX NAME)

● Li^+

RN 248588-09-2 HCPLUS

CN Indium lithium manganese sodium oxide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
O	x	17778-80-2
In	x	7440-74-6
Na	x	7440-23-5
Mn	x	7439-96-5
Li	x	7439-93-2

RETABLE

Referenced Author (RAU)	Year (R PY)	VOL (R VL)	PG (R PG)	Referenced Work (RWK)	Referenced File
Delnick Frank, M	1995			US 5426006 A	HCPLUS
Fujita Yuko	1998			WO 9804010 A	HCPLUS
Nippon Telegr & Teleph	1989	013		JP 01-128354 A	HCPLUS

Takeuchi Esther, S | 1996 | | US 5558680 A | HCAPLUS

L64 ANSWER 10 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:206870 HCAPLUS

DN 130:252076

TI Preparation of alcohol cyanoethyl ethers for lithium **batteries** and organic electrolytic solutions containing them

IN Nishikawa, Satoshi

PA Sunstar Engineering, Inc., Japan; Uni Sunstar Bv

SO Jpn. Kokai Tokkyo Koho, 9 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11080112	A	19990326	JP 1997-245178	19970910 <--
PRAI JP 1997-245178		19970910	<--	

OS MARPAT 130:252076

AB (R1O)aR2(OCH2CH2CN)b (I; R1 = C11-3 alkyl; R2 = residue of alcs. having 1-4 OH groups; a = 0-3; b = 1-4; a + b = 1-4) are prepared by cyanoethylation of alcs. with acrylonitrile (II) in the presence of ≥ 1 selected from (a) LiOH and (b) Li metal, Li alkoxides, compds. comprising Li and active methylene compds. such as Li acetylacetone and in the absence of H2O. The organic electrolyte solns. for Li **batteries** or Li ion secondary **batteries** comprise I and Li salts dissolved therein. The electrolyte solns. may contain aprotic polar compds. This method gives I without discoloration due to polymerization

of II. II was added dropwise to a mixture of ethylene glycol and LiOH.H2O at 40-0° over 2 h, and the reaction mixture was further stirred at 40-50° for 3 h to give ethylene glycol-bis(2-cyanoethyl) ether (III) with purity $\geq 99.5\%$. LiClO4 was dissolved in III to give an electrolyte solution showing conductivity $2.7 + 10^{-3}$ S·Cm $^{-1}$.

IC ICM C07C0255-13

ICS B01J0023-04; C07C0253-30; H01M0010-40; C07B0061-00

CC 23-19 (Aliphatic Compounds)

Section cross-reference(s): 52

ST polyol cyanoethyl ether prepn **battery** electrolyte; alc cyanoethyl ether prepn **battery** electrolyte; acrylonitrile cyanoethylation polyol lithium hydroxide catalyst; ethylene glycol cyanoethyl ether **battery** electrolyte

IT Polar solvents.

Polar solvents

(aprotic; preparation of (poly)alc. cyanoethyl ethers as **battery** electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT Cyanoethylation

Cyanoethylation

(catalysts; preparation of (poly)alc. cyanoethyl ethers as **battery** electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT Ethylation catalysts

Ethylation catalysts

(cyanoethylation catalysts; preparation of (poly)alc. cyanoethyl ethers as **battery** electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)IT Primary **batteries**Secondary **batteries**(lithium; preparation of (poly)alc. cyanoethyl ethers as **battery** electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT Alcohols, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)
 (polyhydric; preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile).

IT **Battery electrolytes**
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT Alcohols, reactions
 Glycols, reactions
 Polyoxyalkylenes, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT **7439-93-2**, Lithium, uses **18115-70-3**, Lithium
 acetylacetone, uses
 RL: CAT (Catalyst use); USES (Uses)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT **112-27-6P**
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT **110-47-4P 110-67-8P**, 2-Cyanoethyl methyl ether
2141-62-0P 2465-91-0P 2465-93-2P 3386-87-6P, Ethylene glycol
 bis(2-cyanoethyl) ether **6959-71-3P** 9003-07-0DP, Polypropylene,
 triol derivs., bis(2-cyanoethyl)ether 16792-83-9P, Propylene glycol
 bis(2-cyanoethyl) ether 22397-30-4P 22397-31-5P, Diethylene glycol
 bis(2-cyanoethyl) ether 25265-71-8DP, Dipropylene glycol, ether with
 2-cyanoethyl and Me 35633-45-5P 35633-50-2P 35633-51-3P
 39377-81-6P 39927-06-5P, Polyethylene glycol bis(2-cyanoethyl) ether
51299-82-2P 57741-46-5P, Triethylene glycol bis(2-cyanoethyl)
 ether 59113-36-9DP, Diglycerin, ether with tetrakis(2-cyanoethyl)
 61579-08-6P 180316-31-8P, 2,5,8,11-Tetraoxatetradecane-14-nitrile
 221628-60-0P 221628-62-2P 221628-64-4P
 RL: IMF (Industrial manufacture); SPN (Synthetic preparation); TEM
 (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT **56-81-5**, 1,2,3-Propanetriol, reactions **57-55-6**, 1,2-Propanediol,
 reactions **64-17-5**, Ethanol, reactions **67-56-1**, Methanol, reactions
67-63-0, Isopropanol, reactions **71-23-8**, n-Propanol, reactions
71-36-3, n-Butanol, reactions **102-71-6**, Triethanolamine, reactions
107-13-1, 2-Propenenitrile, reactions **107-21-1**, 1,2-Ethanediol,
 reactions **109-86-4**, Ethylene glycol monomethyl ether **110-80-5**,
 Ethylene glycol monoethyl ether **111-46-6**, Diethylene glycol, reactions
111-77-3, Diethylene glycol monomethyl ether **112-35-6**, Triethylene
 glycol monomethyl ether **115-77-5**, reactions **122-20-3**,
 Triisopropanolamine **1320-67-8**, Propylene glycol monomethyl ether
4439-20-7 25265-71-8, Dipropylene glycol **25322-68-3** **25322-69-4**,
 Polypropylene glycol **25618-55-7** **34590-94-8**, Dipropylene glycol
 monomethyl ether **52125-53-8**, Propylene glycol monoethyl ether
59113-36-9, Diglycerin
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT **7791-03-9**, Lithium perchlorate **14283-07-9**
 RL: TEM (Technical or engineered material use); USES (Uses)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT **1310-65-2**, Lithium hydroxide

RL: CAT (Catalyst use); USES (Uses)
 (preparation of polyol cyanoethyl ethers as **battery** electrolytes
 by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT 96-49-1, Ethylene carbonate

RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent; preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

IT 7439-93-2, Lithium, uses 18115-70-3, Lithium
 acetylacetone, uses

RL: CAT (Catalyst use); USES (Uses)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

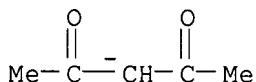
RN 7439-93-2 HCPLUS

CN Lithium (CA INDEX NAME)

Li

RN 18115-70-3 HCPLUS

CN 2,4-Pentanedione, ion(1-), lithium (9CI) (CA INDEX NAME)



● Li^+

IT 110-47-4P 110-67-8P, 2-Cyanoethyl methyl ether

2141-62-0P 6959-71-3P 51299-82-2P

RL: IMF (Industrial manufacture); SPN (Synthetic preparation); TEM
 (Technical or engineered material use); PREP (Preparation); USES (Uses)
 (preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 110-47-4 HCPLUS

CN Propanenitrile, 3-(1-methylethoxy)- (9CI) (CA INDEX NAME)

i-PrO-CH₂-CH₂-CN

RN 110-67-8 HCPLUS

CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

MeO-CH₂-CH₂-CN

{ all group D}

1.800

RN 2141-62-0 HCPLUS

CN Propanenitrile, 3-ethoxy- (9CI) (CA INDEX NAME)

EtO-CH₂-CH₂-CN

RN 6959-71-3 HCPLUS

CN Propanenitrile, 3-butoxy- (9CI) (CA INDEX NAME)

n-BuO-CH₂-CH₂-CN

RN 51299-82-2 HCPLUS

CN Propanenitrile, 3-propoxy- (9CI)

↗
↙

Group D

1.372.1033

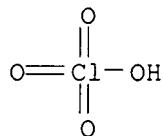
n-PrO-CH₂-CH₂-CN

IT 7791-03-9, Lithium perchlorate 14283-07-9

RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of (poly)alc. cyanoethyl ethers as **battery**
electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 7791-03-9 HCPLUS

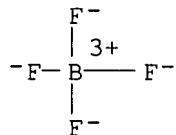
CN Perchloric acid, lithium salt (8CI, 9CI) (CA INDEX NAME)



● Li

RN 14283-07-9 HCPLUS

CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

● Li⁺

IT 1310-65-2, Lithium hydroxide

RL: CAT (Catalyst use); USES (Uses)
(preparation of polyol cyanoethyl ethers as **battery** electrolytes
by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 1310-65-2 HCPLUS

CN Lithium hydroxide (Li(OH)) (9CI) (CA INDEX NAME)

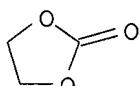
Li-OH

IT 96-49-1, Ethylene carbonate

RL: TEM (Technical or engineered material use); USES (Uses)
 (solvent; preparation of (poly)alc. cyanoethyl ethers as **battery**
 electrolytes by LiOH-catalyzed reaction of polyols and acrylonitrile)

RN 96-49-1 HCPLUS

CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



L64 ANSWER 11 OF 12 HCPLUS COPYRIGHT 2007 ACS on STN

AN 1997:129574 HCPLUS

DN 126:133588

TI Nonaqueous electrolyte **batteries** using electrolytes containing self discharge inhibitors

IN Jinno, Maruo; Uehara, Mayumi; Sakurai, Atsushi; Nishio, Koji; Saito, Toshihiko

PA Sanyo Denki Kk, Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08321312	A	19961203	JP 1995-150844	19950524 <--
PRAI JP 1995-150844		19950524 <--		

AB Li **batteries** use electrolytes containing LiCF₃SO₃ or LiPF₆ dissolved in high dielec. constant solvent selected from ethylene carbonate, propylene carbonate, and butylene carbonate; where the electrolytes contain 1-20 volume% additive selected from triethylamine, n-butylamine, aniline, tri-Me hydroxylamine, 1-dimethylamino-2-methoxy ethane, acetonitrile, acrylonitrile, 3-methoxy propionitrile, benzonitrile, nitromethane, nitroethane, N,N-dimethylacetamide, N,N-dimethylformamide, formamide, N-methyl-2-pyrrolidone, N,N'-dimethyl imidazolidinone, isoxazole, 3,5-di-Me isoxazole, 3-methyl-2-oxazolidone, 1,2,3-oxadiazole, N-Me morpholine, di-Me sulfide, Et Me sulfide, 2-Me thiophene, 1-butane thiol, benzene thiol, di-Me sulfate, di-Et sulfate, di-Me sulfite, di-Et sulfite, butadienesulfone, 3-Me sulfolene, 1,4-thioxane, phenoxathiin, 1,4-thiazine, thiomorpholine, pyridine, 1,3-dimethyl-2-imidazolidinone, DMSO, di-Me sulfone, Me Et sulfonate, and di-Me sulfinate. The electrolytes may contain 1,2-dimethoxyethane. Since the additives react with Li in anodes and the solvents and the solutes in the electrolytes to form coatings on the anodes for prevention of the reaction between the electrolytes and the anodes, the **batteries** have improved storage property. These **batteries** have long shelf life.

IC ICM H01M0006-16

ICS H01M0010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

ST lithium **battery** electrolyte self discharge inhibitor

IT **Battery electrolytes**

(self discharge inhibitors in nonaq. electrolyte solns. for lithium **batteries**)

IT 7439-93-2, Lithium, uses 21324-40-3, Lithium hexafluorophosphate 33454-82-9, Lithium trifluoromethanesulfonate

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)

IT 62-53-3, Aniline, uses 64-67-5, Diethyl sulfate 67-68-5, Dimethylsulfoxide, uses 67-71-0, Dimethylsulfone 68-12-2, N,N-Dimethylformamide, uses 75-05-8, Acetonitrile, uses 75-12-7, Formamide, uses 75-18-3, Dimethylsulfide 75-52-5, Nitromethane, uses 77-78-1, Dimethyl sulfate 79-24-3, Nitroethane 80-73-9, N,N'-Dimethylimidazolidinone 100-47-0, Benzonitrile, uses 107-13-1, Acrylonitrile, uses 108-98-5, Benzenethiol, uses 109-02-4, N-Methylmorpholine 109-73-9, n-Butylamine, uses 109-79-5, 1-Butanethiol **110-67-8**, 3-Methoxypropionitrile 110-86-1, Pyridine, uses 121-44-8, Triethylamine, uses 123-90-0, Thiomorpholine 127-19-5, N,N-Dimethylacetamide 262-20-4, Phenoxathiin 288-14-2, Isoxazole 288-43-7, 1,2,3-Oxadiazole 290-56-2, 1,4-Thiazine 290-57-3, 1,4-Thiazine 300-87-8, 3,5-Dimethylisoxazole 554-14-3, 2-Methylthiophene 616-42-2, Dimethyl sulfite 623-81-4, Diethyl sulfite 624-89-5, Ethylmethylsulfide 666-15-9 872-50-4, N-Methyl-2-pyrrolidone, uses 1193-10-8, 3-Methylsulfolene 1912-28-3, Methyl ethyl sulfonate 3030-44-2 5669-39-6, Trimethylhydroxylamine 15980-15-1, 1,4-Thioxane 19836-78-3 28452-93-9, Butadienesulfone
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(self discharge inhibitors in nonaq. electrolyte solns. for lithium batteries)

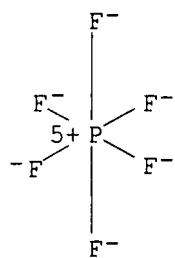
IT **96-49-1**, Ethylene carbonate 108-32-7, Propylene carbonate 110-71-4, 1,2-Dimethoxyethane **4437-85-8**, Butylene carbonate
RL: DEV (Device component use); USES (Uses)
(solvents for nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)

IT **7439-93-2**, Lithium, uses 21324-40-3, Lithium hexafluorophosphate **33454-82-9**, Lithium trifluoromethanesulfonate
RL: DEV (Device component use); USES (Uses)
(nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)

RN 7439-93-2 HCAPLUS
CN Lithium (CA INDEX NAME)

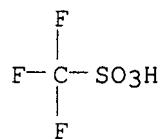
Li

RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li⁺

RN 33454-82-9 HCPLUS
 CN Methanesulfonic acid, trifluoro-, lithium salt (8CI, 9CI) (CA INDEX NAME)



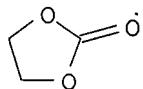
● Li

IT 110-67-8, 3-Methoxypropionitrile
 RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
 (self discharge inhibitors in nonaq. electrolyte solns. for lithium batteries)
 RN 110-67-8 HCPLUS
 CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

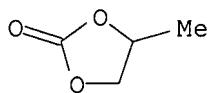
MeO—CH₂—CH₂—CN

Group D

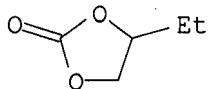
IT 96-49-1, Ethylene carbonate 108-32-7, Propylene carbonate 4437-85-8, Butylene carbonate
 RL: DEV (Device component use); USES (Uses)
 (solvents for nonaq. electrolyte solns. containing self discharge inhibitors for lithium batteries)
 RN 96-49-1 HCPLUS
 CN 1,3-Dioxolan-2-one (9CI) (CA INDEX NAME)



RN 108-32-7 HCPLUS
 CN 1,3-Dioxolan-2-one, 4-methyl- (9CI) (CA INDEX NAME)



RN 4437-85-8 HCAPLUS
 CN 1,3-Dioxolan-2-one, 4-ethyl- (9CI) (CA INDEX NAME)



L64 ANSWER 12 OF 12 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 1989:176598 HCAPLUS
 DN 110:176598
 TI Research of new solvents for lithium **batteries**. II. Behavior of aliphatic nitriles substituted by electron donating groups
 AU Guibert, Sylvie; Cariou, Michel; Simonet, Jacques
 CS Lab. Electrochim., Univ. Rennes I, Rennes, 35042, Fr.
 SO Bulletin de la Societe Chimique de France (1988), (6), 924-9
 CODEN: BSCFAS; ISSN: 0037-8968
 DT Journal
 LA French
 AB Methoxyacetonitrile (I), methoxy-3-propionitrile, and cyano-1-pyrrolidine have low reactivity towards Li and a broad electrochem. stability window (>5.0 V), suitable for use as electrolyte solvents in Li **batteries**. The dimer of I is formed in basic conditions or in the presence of an alkali metal and can be oxidized electrochem. At potentials more cathodic than the equilibrium potential of the Li/Li⁺ couple, I is electrochem. unstable, but the formation of the dimer can be reversed by controlling the pH of the medium.
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 28, 72
 ST methoxyacetonitrile stability electrolyte lithium **battery**;
 cyanopyrrolidine stability electrolyte lithium **battery**;
 methoxypropionitrile stability electrolyte lithium **battery**
 IT **Batteries, secondary**
 (lithium, electrolytes for, aliphatic nitrile solvents for, stability of)
 IT 110-67-8, Methoxy-3-propionitrile 1530-88-7, Cyano-1-pyrrolidine
 1738-36-9, Methoxyacetonitrile
 RL: USES (Uses)
 (chemical and electrochem. stability of, for lithium **battery** electrolyte use)
 IT 29935-35-1, Lithium hexafluoroarsenate (LiAsF₆)
 RL: USES (Uses)
 (electrolytes containing, aliphatic nitrile solvents for, stability of)
 IT 7439-93-2, Lithium, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with aliphatic nitrile solvents, **battery** electrolyte use in relation to)
 IT 110-67-8, Methoxy-3-propionitrile 1738-36-9,
 Methoxyacetonitrile
 RL: USES (Uses)
 (chemical and electrochem. stability of, for lithium **battery** electrolyte use)

RN 110-67-8 HCPLUS
 CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

MeO—CH₂—CH₂—CN

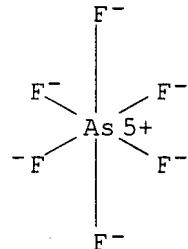
Group D

RN 1738-36-9 HCPLUS
 CN Acetonitrile, methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

H₃C—O—CH₂—C≡N

Group A

IT 29935-35-1, Lithium hexafluoroarsenate
 RL: USES (Uses)
 (electrolytes containing, aliphatic nitrile solvents for, stability of)
 RN 29935-35-1 HCPLUS
 CN Arsenate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li⁺

IT 7439-93-2, Lithium, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction of, with aliphatic nitrile solvents, battery
 electrolyte use in relation to)
 RN 7439-93-2 HCPLUS
 CN Lithium (CA INDEX NAME)

Li

=> d his

(FILE 'HOME' ENTERED AT 06:22:08 ON 27 FEB 2007)
 SET COST OFF

FILE 'REGISTRY' ENTERED AT 06:22:38 ON 27 FEB 2007
 ACT LAURA731B/A

L1 27 SEA FILE=REGISTRY ABB=ON PLU=ON (463-79-6/BI OR 1001-55-4/BI

ACT LAURA731/A

L2 STR
 L3 SCR 2043 OR 1838 OR 1993 OR 2021 OR 2016 OR 2026 OR 1918 2039 O
 L4 436 SEA FILE=REGISTRY CSS FUL L2 NOT L3

ACT LAURA731A/A

L5 SCR 2043 OR 1838 OR 1993 OR 2021 OR 2016 OR 2026 OR 1918 2039 O
 L6 STR
 L7 55 SEA FILE=REGISTRY CSS FUL L6 NOT L5

L8 10 S L1 AND (NITRILE OR CYANO)
 L9 9 S L8 AND 1/N
 L10 498 S L4,L7,L9
 L11 STR L2
 L12 STR L6
 L13 40 S L11 OR L12 NOT L3 CSS SAM
 L14 SCR 2043 OR 1838 OR 1993 OR 2021 OR 2016 OR 2026 OR 1918 OR 203
 L15 40 S (L11 OR L12) NOT L14 CSS SAM
 L16 724 S (L11 OR L12) NOT L14 CSS FUL
 SAV LAURA731C/A L16 TEMP
 L17 732 S L9,L10,L16
 L18 727 S L17 NOT ((D OR T)/ELS OR 11C# OR 13C# OR 14C# OR C11# OR C13#

FILE 'HCAPLUS' ENTERED AT 06:49:30 ON 27 FEB 2007
 L19 1653 S L18

FILE 'REGISTRY' ENTERED AT 06:49:47 ON 27 FEB 2007
 L20 5 S 7791-03-9 OR 14283-07-9 OR 21324-40-3 OR 29935-35-1 OR 90076-
 L21 6 S LI/MF NOT MASS
 L22 5 S 12031-65-1 OR 12057-17-9 OR 12190-79-3 OR 15365-14-7 OR 31134
 L23 77211 S (LI/ELS OR ?LITHIUM?/CNS OR 7439-93-2/CRN) AND (O/ELS OR 1777
 L24 6981 S L23 AND (NI/ELS OR ?NICKEL?/CNS OR 7440-02-0/CRN)
 L25 6839 S L23 AND (CO/ELS OR ?COBALT?/CNS OR 7440-48-4/CRN)
 L26 8874 S L23 AND (MN/ELS OR ?MANGANESE?/CNS OR 7439-96-5/CRN)
 L27 1501 S L24-L26 AND 3/ELC.SUB
 L28 428 S L24 AND L25 AND 4/ELC.SUB
 L29 1935 S L27,L28,L20,L22

FILE 'HCAPLUS' ENTERED AT 06:54:48 ON 27 FEB 2007
 L30 32 S L29 AND L19
 L31 14 S L21 AND L19
 L32 38 S L30,L31

FILE 'REGISTRY' ENTERED AT 06:55:25 ON 27 FEB 2007
 L33 0 S L1 AND LI/ELS NOT L29,L21
 L34 5 S 96-49-1 OR 105-58-8 OR 108-32-7 OR 616-38-6 OR 623-53-0

FILE 'HCAPLUS' ENTERED AT 06:56:20 ON 27 FEB 2007
 L35 17 S L34 AND L32
 L36 6 S L32 AND PY<=2003 NOT P/DT
 L37 17 S L32 AND (PD<=20031209 OR PRD<=20031209 OR AD<=20031209) AND P
 L38 23 S L36,L37
 E SUN/AU
 E SUN L/AU
 L39 297 S E3
 L40 17 S E28
 E SUN LU/AU
 L41 145 S E3

L42 3 S E15
L43 17 S E50
E SUN NAME/AU
L44 11 S E4
E LU/AU
L45 5 S E3
E LU Y/AU
L46 734 S E3
L47 272 S E24
E LU YING/AU
L48 357 S E3
E LU NAME/AU
L49 2 S E4
E LUYING/AU
L50 1 S L39-L49 AND L19
L51 23 S L38,L50
L52 11 S L51 NOT BATTERY
L53 12 S L51 NOT L52
SEL RN

FILE 'REGISTRY' ENTERED AT 07:01:38 ON 27 FEB 2007

L54 189 S E1-E189
L55 14 S L54 AND L18
L56 14 S L54 AND L29
L57 12 S L54 AND LI/ELS NOT L56
L58 2 S L54 AND C/MF
L59 5 S L54 AND L34
L60 2 S L54 AND OCOC2/ES NOT L59
L61 140 S L54 NOT L55-L60
L62 1 S L61 AND CH203

FILE 'HCAPLUS' ENTERED AT 07:11:16 ON 27 FEB 2007

L63 12 S L53 AND L55-L60,L62
L64 12 S L63 AND BATTER?/CW,CT,BI

FILE 'REGISTRY' ENTERED AT 07:12:30 ON 27 FEB 2007

FILE 'HCAPLUS' ENTERED AT 07:12:46 ON 27 FEB 2007

=>

=> d his

(FILE 'HOME' ENTERED AT 07:38:39 ON 27 FEB 2007)
SET COST OFF

FILE 'REGISTRY' ENTERED AT 07:38:49 ON 27 FEB 2007

L1 1 S 14283-07-9
L2 1 S 21324-40-3
L3 63030 S 16919-18-9/CRN
L4 62733 S 14874-70-5/CRN
L5 72 S L3 AND L4
L6 0 S L5 AND LI/ELS
L7 56 S L3 AND LI/ELS
L8 110 S L4 AND LI/ELS
L9 38 S L7 AND 2/NC
L10 56 S L8 AND 2/NC
L11 31 S L9 AND NR>=1
L12 7 S L9 NOT L11
L13 81 S L8 AND NR>=1
L14 29 S L8 NOT L13

FILE 'HCAPLUS' ENTERED AT 07:42:47 ON 27 FEB 2007

L15 3382 S L1
L16 2279 S (LI OR LITHIUM) ()TETRAFLUOROBORATE
L17 5 S (LI OR LITHIUM) ()TETRAFLUORO BORATE
L18 0 S (LI OR LITHIUM) ()TETRA FLUORO BORATE
L19 1 S (LI OR LITHIUM) ()TETRA FLUOROBORATE
L20 664 S (LI OR LITHIUM) ()FLUOROBORATE
L21 2 S (LI OR LITHIUM) ()FLUORO BORATE
L22 1876 S LIBF4
L23 10 S LI BF4
L24 4157 S L15-L23
L25 5309 S L2
L26 5022 S (LI OR LITHIUM) ()HEXAFLUOROPHOSPHATE
L27 21 S (LI OR LITHIUM) ()HEXAFLUORO PHOSPHATE
L28 0 S (LI OR LITHIUM) ()HEXA FLUORO PHOSPHATE
L29 3 S (LI OR LITHIUM) ()HEXA FLUOROPHOSPHATE
L30 103 S (LI OR LITHIUM) ()FLUOROPHOSPHATE
L31 0 S (LI OR LITHIUM) ()FLUORO PHOSPHATE
L32 2387 S LIPF6 OR LI PF6
L33 5966 S L25-L32
L34 1647 S L24 AND L33
L35 246 S L34 AND PY<=2003 NOT P/DT
L36 1158 S L34 AND (PD<=20031209 OR PRD<=20031209 OR AD<=20031209) AND P
L37 1404 S L35, L36
L38 1244 S L37 AND BATTERY
E BATTERIES/CT
E E3+ALL
L39 840 S L37 AND (E1 OR E2+OLD, NT OR E3+OLD, NT OR E4+OLD, NT OR E5+OLD,
E BATTERY/CT
L40 997 S L37 AND (E4+OLD, NT OR E5+OLD, NT OR E6+OLD, NT OR E7 OR E8+OLD,
E E9+ALL
L41 48 S L37 AND (E2+OLD, NT OR E3+OLD, NT OR E4+OLD, NT)
L42 1083 S L37 AND H01M/IPC, IC, ICM, ICS
L43 1270 S L38-L42
L44 438 S L43 AND (MIX? OR BLEND?)

FILE 'REGISTRY' ENTERED AT 07:48:11 ON 27 FEB 2007
ACT LAURA731C/A

L45 STR
 L46 STR
 L47 SCR 2043 OR 1838 OR 1993 OR 2021 OR 2016 OR 2026 OR 1918 OR 203
 L48 724 SEA FILE=REGISTRY CSS FUL (L45 OR L46) NOT L47

FILE 'HCAPLUS' ENTERED AT 07:48:30 ON 27 FEB 2007
 L49 3 S L48 AND L43
 L50 1 S L44 AND L49
 L51 3 S L49, L50

=> fil hcaplus
 FILE 'HCAPLUS' ENTERED AT 07:49:05 ON 27 FEB 2007
 USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
 PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
 COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

Copyright of the articles to which records in this database refer is held by the publishers listed in the PUBLISHER (PB) field (available for records published or updated in Chemical Abstracts after December 26, 1996), unless otherwise indicated in the original publications. The CA Lexicon is the copyrighted intellectual property of the American Chemical Society and is provided to assist you in searching databases on STN. Any dissemination, distribution, ~~copying or storing~~ of this information, without the prior written ~~copying or storing~~ strictly prohibited.

FILE COVERS 1907 - 27 Feb 2007 VOL 146 ISS 10
 FILE LAST UPDATED: 26 Feb 2007 (20070226/ED)

Claim 2

New CAS Information Use Policies, enter HELP USA

This file contains CAS Registry Numbers for ease substance identification.

=> d 151 all hitstr retable tot

L51 ANSWER 1 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2005:497321 HCAPLUS
 DN 143:29529
 ED Entered STN: 10 Jun 2005
 TI Nonaqueous electrolytes having an extended temperature range for **battery** applications
 IN Sun, Luying
 PA USA
 SO U.S. Pat. Appl. Publ., 17 pp.
 CODEN: USXXCO
 DT Patent
 LA English
 IC ICM H01M0010-40
 ICS H01M0004-52; H01M0004-50; H01M0004-58
 INCL 429326000; 429330000; 429339000; 429231300; 429231100; 429223000;
 429221000; 429224000; 429231800
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 Section cross-reference(s): 72, 76
 FAN.CNT 1
 PATENT NO. KIND DATE APPLICATION NO. DATE
 ----- ----- ----- -----
 PI US 2005123835 A1 20050609 US 2003-731268 20031209 <--

PRAI US 2003-731268

20031209 <--

CLASS

PATENT NO. CLASS PATENT FAMILY CLASSIFICATION CODES

US 2005123835	ICM	H01M0010-40
	ICS	H01M0004-52; H01M0004-50;
		H01M0004-58
	INCL	429326000; 429330000; 429339000; 429231300; 429231100; 429223000; 429221000; 429224000; 429231800
	IPCI	H01M0010-40 [ICM,7]; H01M0010-36 [ICM,7,C*]; H01M0004-52 [ICS,7]; H01M0004-50 [ICS,7]; H01M0004-58 [ICS,7] <--
	IPCR	H01M0010-36 [I,C*]; H01M0010-40 [I,A] <--
	NCL	429/326.000; 429/221.000; 429/223.000; 429/224.000; 429/231.100; 429/231.300; 429/231.800; 429/330.000; 429/339.000
	ECLA	H01M010/40E1

OS MARPAT 143:29529

AB The present invention discloses non-aqueous electrolytes having an extended temperature range for **battery** applications. The electrolyte comprises an electrolyte salt, e.g., **LiPF6**, a first non-aqueous solvent, and a second non-aqueous solvent. The electrolyte of the present invention has higher ionic conductivity, lower f.p., and lower vapor pressure at high temperature than com. electrolytes. These non-aqueous electrolytes can be used, for example, in lithium-ion **batteries**. Methods of making lithium-ion **batteries** are also described.

ST **battery** nonaq electrolyte extended temp range

IT Electrochromic devices

Sensors

(electrolyte; nonaq. electrolytes having extended temperature range for **battery** applications)IT **Secondary batteries**(lithium; nonaq. electrolytes having extended temperature range for **battery** applications)IT **Battery electrolytes**

Electrolytic capacitors

Fuel cell electrolytes

Ionic conductivity

(nonaq. electrolytes having extended temperature range for **battery** applications)

IT Carbonaceous materials (technological products)

Coke

Esters, uses

Ethers, uses

RL: DEV (Device component use); USES (Uses)

(nonaq. electrolytes having extended temperature range for **battery** applications)

IT Sulfonic acids, uses

RL: DEV (Device component use); USES (Uses)

(perfluoro, lithium salt; nonaq. electrolytes having extended temperature range for **battery** applications)

IT Perfluoro compounds

RL: DEV (Device component use); USES (Uses)

(sulfonic acids, lithium salt; nonaq. electrolytes having extended temperature range for **battery** applications)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7,

Propylene carbonate 110-67-8, 3-Methoxypropionitrile

463-79-6D, Carbonic acid, ester, cyclic 463-79-6D, Carbonic acid, ester,

linear 616-38-6, Dimethyl carbonate 623-53-0, Ethyl methyl carbonate

1001-55-4, 2-Acetoxyacetonitrile 1656-48-0 1738-36-9,
 Methoxyacetonitrile 2141-62-0, 3-Ethoxypropionitrile
 7782-42-5, Graphite, uses 7791-03-9, Lithium perchlorate 12031-65-1,
 Lithium nickel oxide (LiNiO₂) 12057-17-9, Lithium manganese oxide
 (LiMn₂O₄) 12190-79-3, Cobalt lithium oxide (CoLiO₂) 14283-07-9
 , Lithium tetrafluoroborate 15365-14-7, Iron lithium
 phosphate felipo4 18804-04-1, uses 21324-40-3,
 Lithium hexafluorophosphate 29935-35-1, Lithium
 hexafluoroarsenate 56756-91-3 62957-60-2,
 Ethoxyacetonitrile 90076-65-6 260362-83-2 311346-25-5, Cobalt
 lithium nickel oxide (Co0.1-0.9LiNi0.1-0.9O₂) 852995-04-1
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolytes having extended temperature range for **battery**
 applications)

IT 110-67-8, 3-Methoxypropionitrile 1001-55-4,
 2-Acetoxyacetonitrile 1738-36-9, Methoxyacetonitrile
 2141-62-0, 3-Ethoxypropionitrile 14283-07-9,
 Lithium tetrafluoroborate 18804-04-1, uses
 21324-40-3, Lithium hexafluorophosphate
 56756-91-3 62957-60-2, Ethoxyacetonitrile
 852995-04-1
 RL: DEV (Device component use); USES (Uses)
 (nonaq. electrolytes having extended temperature range for **battery**
 applications)

RN 110-67-8 HCPLUS
 CN Propanenitrile, 3-methoxy- (9CI) (CA INDEX NAME)

MeO—CH₂—CH₂—CN

RN 1001-55-4 HCPLUS
 CN Acetonitrile, (acetyloxy)- (9CI) (CA INDEX NAME)

AcO—CH₂—CN

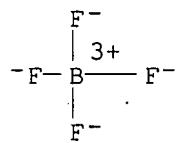
RN 1738-36-9 HCPLUS
 CN Acetonitrile, methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

H₃C—O—CH₂—C≡N

RN 2141-62-0 HCPLUS
 CN Propanenitrile, 3-ethoxy- (9CI) (CA INDEX NAME)

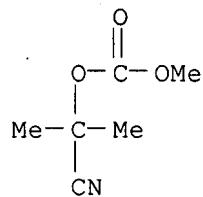
EtO—CH₂—CH₂—CN

RN 14283-07-9 HCPLUS
 CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)

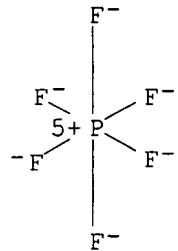


● Li^+

RN 18804-04-1 HCPLUS
 CN Carbonic acid, 1-cyano-1-methylethyl methyl ester (9CI) (CA INDEX NAME)

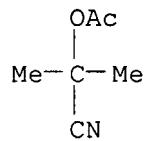


RN 21324-40-3 HCPLUS
 CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

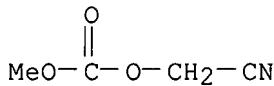
RN 56756-91-3 HCPLUS
 CN Propanenitrile, 2-(acetyloxy)-2-methyl- (9CI) (CA INDEX NAME)



RN 62957-60-2 HCPLUS
 CN Acetonitrile, ethoxy- (6CI, 9CI) (CA INDEX NAME)

EtO-CH₂-CN

RN 852995-04-1 HCAPLUS
 CN Carbonic acid, cyanomethyl methyl ester (9CI) (CA INDEX NAME)



L51 ANSWER 2 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
 AN 2000:399134 HCAPLUS
 DN 133:20143
 ED Entered STN: 16 Jun 2000
 TI Nonaqueous electrolyte solutions and secondary nonaqueous electrolyte
batteries
 IN Hayashi, Takeshi; Tan, Hiroaki
 PA Mitsui Petrochemical Industries, Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 7 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 IC ICM **H01M0010-40**
 CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
 FAN.CNT 1

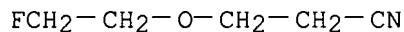
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2000164249	A	20000616	JP 1998-336632	19981127 <--
PRAI JP 1998-336632		19981127 <--		

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
JP 2000164249	ICM	H01M0010-40
	IPCI	H01M0010-40 [ICM, 7]
	IPCR	H01M0010-36 [I, C*]; H01M0010-40 [I, A]

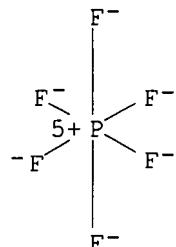
OS MARPAT 133:20143
 AB The electrolyte solns. contain an electrolyte and a nonaq. solvent containing a F-containing cyanoethyl ether X(OR)_nCH₂CH₂CN, where X = F substituted C₁-10 hydrocarbon group, R = C₂-4 alkylene group, and n = 0-30. The salt is selected from **LiPF₆**, **LiBF₄**, and Li salts of S containing organic acids. The **batteries** are secondary Li **batteries**.
 ST secondary lithium **battery** electrolyte solvent; lithium **battery** electrolyte solvent fluorinated cyanoethyl ether
 IT **Battery electrolytes**
 (nonaq. solvent **mixts.** containing fluorinated cyanoethyl ethers for electrolytes in secondary lithium **batteries**)
 IT 96-49-1, Ethylene carbonate **353-18-4** 616-38-6, Dimethyl carbonate **21324-40-3**, **Lithium hexafluorophosphate** 85169-02-4 **272128-06-0**
 272128-07-1 272128-08-2 272128-09-3 272128-10-6
 RL: DEV (Device component use); USES (Uses)
 (nonaq. solvent **mixts.** containing fluorinated cyanoethyl ethers for electrolytes in secondary lithium **batteries**)
 IT **353-18-4 21324-40-3, Lithium hexafluorophosphate 272128-06-0**
 RL: DEV (Device component use); USES (Uses)

(nonaq. solvent **mixts.** containing fluorinated cyanoethyl ethers
for electrolytes in secondary lithium **batteries**)

RN 353-18-4 HCAPLUS
CN Propanenitrile, 3-(2-fluoroethoxy)- (9CI) (CA INDEX NAME)

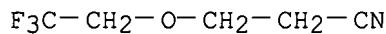


RN 21324-40-3 HCAPLUS
CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 272128-06-0 HCAPLUS
CN Propanenitrile, 3-(2,2,2-trifluoroethoxy)- (9CI) (CA INDEX NAME)



L51 ANSWER 3 OF 3 HCAPLUS COPYRIGHT 2007 ACS on STN
AN 1999:737130 HCAPLUS
DN 131:325078
ED Entered STN: 19 Nov 1999
TI Primary or secondary electrochemical generator
IN Gratzel, Michael; Sugnaux, Francois R.; Pappas, Nicholas
PA Ecole Polytechnique Federale De Lausanne (Epfl) Sri, Switz.
SO PCT Int. Appl., 29 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM H01M0010-40
ICS H01M0004-48; H01M0004-58
CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9959218	A1	19991118	WO 1999-EP3261	19990508 <--
	W: CN, JP, US RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 1086506	A1	20010328	EP 1999-932452	19990508 <--
	R: CH, DE, FR, GB, LI, NL, IE				

PRAI EP 1998-810431 A 19980512 <--
 WO 1999-EP3261 W 19990508 <--

CLASS

PATENT NO.	CLASS	PATENT FAMILY CLASSIFICATION CODES
WO 9959218	ICM	H01M0010-40
	ICS	H01M0004-48; H01M0004-58
	IPCI	H01M0010-40 [ICM, 6]; H01M0010-36 [ICM, 6, C*]; H01M0004-48 [ICS, 6]; H01M0004-58 [ICS, 6] <--
	IPCR	H01M0004-48 [I, C*]; H01M0004-48 [I, A]; H01M0004-58 [I, C*]; H01M0004-58 [I, A]; H01M0010-36 [I, C*]; H01M0010-40 [I, A] <--
EP 1086506	ECLA	H01M004/48; H01M004/48B2; H01M004/58B; H01M010/40L
	IPCI	H01M0010-40 [ICM, 6]; H01M0010-36 [ICM, 6, C*]; H01M0004-48 [ICS, 6]; H01M0004-58 [ICS, 6] <--
	IPCR	H01M0004-48 [I, C*]; H01M0004-48 [I, A]; H01M0004-58 [I, C*]; H01M0004-58 [I, A]; H01M0010-36 [I, C*]; H01M0010-40 [I, A] <--

AB A high power d. and high capacity primary or secondary electrochem. generator has at least one electrode composed of an elec. active solid material, the electrode having a mesoporous texture forming a bi-continuous junction of large sp. surface area with the electrolyte. The specific morphol. of the electroactive material permits high rates of ion insertion in the solid while allowing for rapid ion transport in electrolyte present in the porous space of the electrode. Specific methods for preparation of the electrode are disclosed, in particular the control of the electrode morphol. by use of surfactant assemblies such as surfactant micelles exerting a templating effect during the chemical synthesis of the electroactive material.

ST **battery electrode transition metal oxide chalcogenide**
 IT **Primary batteries**

Secondary batteries

(lithium; primary or secondary electrochem. generator)

IT **Battery electrodes**

(primary or secondary electrochem. generator)

IT Transition metal chalcogenides

Transition metal oxides

RL: DEV (Device component use); USES (Uses)

(primary or secondary electrochem. generator)

IT Glass, uses

RL: DEV (Device component use); USES (Uses)

(separator; primary or secondary electrochem. generator)

IT Titanium alloy

RL: DEV (Device component use); USES (Uses)

(current collector; primary or secondary electrochem. generator)

IT Aluminum alloy

RL: DEV (Device component use); USES (Uses)

(primary or secondary electrochem. generator)

IT 7440-44-0, Carbon, uses 12597-68-1, Stainless steel, uses

RL: DEV (Device component use); USES (Uses)

(current collector; primary or secondary electrochem. generator)

IT 7782-42-5, Graphite, uses

RL: DEV (Device component use); USES (Uses)

(paper, current collector; primary or secondary electrochem. generator)

IT 96-48-0 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 616-38-6, Dimethyl carbonate 646-06-0, Dioxolane 1309-37-1, Iron oxide (Fe2O3), uses 1312-43-2, Indium oxide 1313-13-9, Manganese dioxide, uses 1313-27-5, Molybdenum trioxide, uses 1313-96-8, Niobium pentoxide 1314-35-8, Tungsten trioxide, uses 1314-62-1, Vanadium pentoxide, uses 1317-33-5, Molybdenum sulfide mos2,

uses 1317-61-9, Iron oxide (Fe3O4), uses 1738-36-9,
 Methoxyacetonitrile 2923-17-3, Lithium trifluoroacetate 11113-84-1,
 Ruthenium oxide 11126-12-8, Iron sulfide 11129-18-3, Cerium oxide
 12039-13-3, Titanium disulfide 12055-23-1, Hafnium dioxide 12067-45-7,
 Titanium diselenide 12138-09-9, Tungsten sulfide ws2 12645-46-4,
 Iridium oxide 13463-67-7, Titania, uses 14024-11-4, Lithium
 tetrachloroaluminate 14283-07-9, **Lithium**
tetrafluoroborate 18424-17-4, Lithium hexafluoroantimonate
21324-40-3, Lithium hexafluorophosphate
 26856-69-9, Methoxypropionitrile 28106-65-2, Tetrafluoropropanol
 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate
 37245-92-4, Ruthenium sulfide 39300-70-4, Lithium nickel oxide
 39457-42-6, Lithium manganese oxide 52627-24-4, Cobalt lithium oxide
 59763-75-6, Tantalum oxide 66216-18-0 90076-65-6 131344-56-4, Cobalt
 lithium nickel oxide 131651-65-5, 1-Butanesulfonic acid,
 1,1,2,2,3,3,4,4,4-nonafluoro-, lithium salt 132404-42-3 248588-09-2,
 Indium lithium manganese sodium oxide
 RL: DEV (Device component use); USES (Uses)
 (primary or secondary electrochem. generator)

IT 82113-65-3D, alkylguanidinium compound 145022-44-2 174899-82-2
 RL: DEV (Device component use); MOA (Modifier or additive use); USES
 (Uses)
 (primary or secondary electrochem. generator)

IT 1314-23-4, Zirconia, uses 1344-28-1, Aluminum oxide (Al2O3), uses
 9003-07-0, Polypropylene
 RL: DEV (Device component use); USES (Uses)
 (separator; primary or secondary electrochem. generator)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Delnick Frank, M; US 5426006 A 1995 HCPLUS
- (2) Fujita Yuko; WO 9804010 A 1998 HCPLUS
- (3) Nippon Telegr & Teleph Corp; JP 01-128354 A 1989, V013(374) HCPLUS
- (4) Takeuchi Esther, S; US 5558680 A 1996 HCPLUS

IT 1738-36-9, Methoxyacetonitrile 14283-07-9,
Lithium tetrafluoroborate 21324-40-3,
Lithium hexafluorophosphate

RL: DEV (Device component use); USES (Uses)
 (primary or secondary electrochem. generator)

RN 1738-36-9 HCPLUS

CN Acetonitrile, methoxy- (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

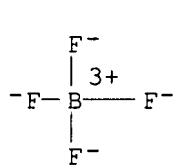
$\text{H}_3\text{C}-\text{O}-\text{CH}_2-\text{C}\equiv\text{N}$

Group A

1.80

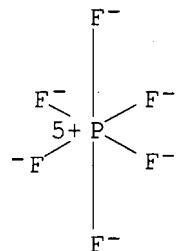
RN 14283-07-9 HCPLUS

CN Borate(1-), tetrafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li^+

RN 21324-40-3 HCAPLUS
 CN Phosphate(1-), hexafluoro-, lithium (8CI, 9CI) (CA INDEX NAME)



● Li⁺

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Delnick Frank, M	1995			US 5426006 A	HCAPLUS
Fujita Yuko	1998			WO 9804010 A	HCAPLUS
Nippon Telegr & Teleph	1989	013		JP 01-128354 A	HCAPLUS
Takeuchi Esther, S	1996			US 5558680 A	HCAPLUS

=>